

WHAT IS CLAIMED IS:

1. A biodegradable and bioactive glass-ceramic fabricated from a composition consisting of calcium oxide (CaO), silica (SiO₂), boron oxide (B₂O₃), magnesium oxide (MgO), calcium fluoride (CaF₂) and phosphorus pentoxide (P₂O₅).
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2. The biodegradable and bioactive glass-ceramic according to claim 1, wherein the composition comprises
10 41.40~45.75% by weight of calcium oxide (CaO), 35.0~47.62% by weight of silica (SiO₂), 1.62~14.58% by weight of phosphorus pentoxide (P₂O₅), 0.50~14.58% by weight of boron oxide (B₂O₃), 0.46~4.14% by weight of magnesium oxide (MgO) and 0.05~0.45% by weight of calcium fluoride (CaF₂).
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3. A biodegradable and bioactive glass-ceramic fabricated by mixing a first glass consisting of 41.03~45.86% by weight of calcium oxide (CaO), 43.97~49.14% by weight of silica (SiO₂) and 5~15% by weight of boron oxide (B₂O₃), and a second
20 glass consisting of 44.7 parts by weight of calcium oxide (CaO), 44.7 parts by weight of magnesium oxide (MgO), 34.0 parts by weight of silica (SiO₂), 16.2 parts by weight of phosphorus pentoxide (P₂O₅) and 0.5 parts by weight of calcium fluoride (CaF₂) wherein the mixing ratio of the first glass to
25 the second glass is between 90:10 and 10:90 on a weight basis.

4. A method for fabricating a biodegradable and bioactive glass-ceramic, comprising:

5 preparing a first glass consisting of 41.03~45.86% by weight of calcium oxide (CaO), 43.97~49.14% by weight of silica (SiO₂) and 5~15% by weight of boron oxide (B₂O₃), and a second glass consisting of 44.7 parts by weight of calcium oxide (CaO), 44.7 parts by weight of magnesium oxide (MgO), 34.0 parts by weight of silica (SiO₂), 16.2 parts by weight of phosphorus pentoxide (P₂O₅) and 0.5 parts by weight of calcium fluoride (CaF₂), respectively;

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pulverizing the first glass and the second glass into finely-divided powders having a particle diameter of 1~10μm, respectively;

15 mixing the first glass powder and the second glass powder to obtain a glass powder mixture, the mixing ratio of the first glass to the second glass being between 90:10 and 10:90 on a weight basis;

20 molding the glass powder mixture using a press or into a porous body; and

sintering the molded body at 700~900°C.

25 5. The method for fabricating a biodegradable and bioactive glass-ceramic according to claim 4, wherein the mixing ratio is controlled so as to control the biodegradation

rate.